MECHANICAL DATA SHEET

SHELL AND TUBE HEAT EXCHANGER

Plant Item No.
24590-PTF-ME-CNP-HX-00004

Data Sheet No.
24590-PTF-MED-CNP-P0004

R10395950

Project:	RPP-WTP	Description:	Cesium Evaporator After-Condenser
Project No:	24590	P&ID:	24590-PTF-M6-CNP-P0010
Site:	Hanford	Process Data Sht:	24590-PTF-M5D-CNP-00001
Process flow diagram:	24590-PTF-M5-V17T-P0014	Manufacturer Name	•

General Data

Quality Level	QL-1	TEMA (Class/Type)	B	*
Seismic Category	SC-I	Flow Type (Counter current, etc)	*	ISSUED BY RPP-WTP PDC
Design Code	ASME VIII, Div 1	Heat Exchanger Duty Btu/hr	*	
Code Stamp	Yes	Heat Exchanger Area ft^2	*	
NB Registration	Yes	ΔT (LMTD/Corrected LMTD) °F	*	*

Thermal/Hydraulic Data

	Shell Side		Tube Side	
Fluid Name	Steam		Cooling Water	
Fluid Quantities: Total lbm/hr	•		*	
Condensable Vapor (In/Out)	*	•	*	*
Liquid	*	*	•	*
Noncondensable	*	•	•	*
Temperature (In/Out) °F	*	•	•	•
Specific Gravity	*	*	*	•
Viscosity cP	*	*	*	*
Molecular Weight, Vapor	*	*	*	*
Molecular Weight, Noncondensable	*	*	*	*
Specific Heat Btu/lbm-°F	*	*	*	*
Thermal Conductivity Btu/hr-ft-°F	*	*	*	•
Latent Heat Btu/lbm @ °F	*		*	
Inlet pressure psia	ATM		*	
Tube side Velocity ft/s	*		*	
Pressure Drop (Actual) psi	*		*	
Fouling Resistance (Min) $hr\text{-}ft^2\text{-}°F/Btu$	*		*	

Contents of this document are Dangerous Waste Permit Affecting.

Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.

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9/30/04

EXPIRES: 11/9/2004

This bound document contains a total of 2 sheets

REV	DATE	REASON FOR REVISION	PREPARER	CHECKER	REVIEWER	APPROVER
1	9/29/04	Issued for Permitting Use	J.Hickman	K.Sadler	S.Crow	R.Voke
0	9/14/04	Issued for Permitting Use	J.Hickman	K.Sadler	S.Crow	R.Voke

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Mechanical Data

		Shell Side		Tube Side	
Design Pressure (Max/Min)	psig	100*	Full vacuum*	100*	Full vacuum*
Design Temperature (Max/Min)	°F	378*	40*	125*	40*
Corrosion Allowance	inch	0.04		0.04	
Erosion Allowance	inch	N/A		N/A	
Shell OD / ID	inch	*		Overall Dimensions (H x W x L) inch	*
Total No. of Tubes		*		Tube OD inch	*

Material Data

Shell	SA 240 304***	Shell Cover	SA 240 304***
Channel/Bonnet	SA 240 304***	Channel Cover	SA 240 304***
Tube	A 269 304***	Floating Head Cover	SA 240 304***
Stationary Tube Sheet	SA 240 304***	Floating Tube Sheet	N/A
Shell Side Gaskets	N/A	Tube Side Gaskets	*
Partition Seals	*	Baffles/Supports	*
Insulation	N/A	Forgings (Shell side)	SA 182 F304***
Bolting	SA 194 Grade 8 / SA 193 Grade B8	Forgings (Channel)	SA 182 F304***

Construction Data *(To be determined by the supplier when not specified by the buyer)*

Cross Baffle Type	*	% Baffle Cut (Dia.)	*	Spacing (c/c) inch	*
Bypass Seal Arrangement	*	Longitudinal Seal Type	*	Expansion Joint Type	*
Inlet Nozzle ρV^2	*	Bundle Entrance ρV^2	*	Bundle Exit ρV^2	*
Tube Support Type	*	U-bend Support Type	*	Weight of Bundle lbf	*
Operating Weight lbf	*	Full of Water lbf	*	Weight of Shell lbf	*

Notes

* To be determined by Seller
***Maximum carbon content of 0.030% for all welded components